



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,954	10/15/2003	Todd M. Wenger	H1799-00180	7947

8933 7590 11/13/2006

DUANE MORRIS, LLP
IP DEPARTMENT
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103-4196

EXAMINER

FORD, JOHN K

ART UNIT	PAPER NUMBER
----------	--------------

3744

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/685,954

Applicant(s)

WENGER, TODD M.

Examiner

John K. Ford

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/8/06
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 14-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 14-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Applicant's RCE and preliminary amendment filed September 8, 2006 have been carefully considered. New limitations have been added to all of the pending claims.

Claims 6-13 have been cancelled.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 and 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, applicant has added the limitation that the turret is in "flow communication" with the vapor line and the liquid line. This is deemed to be mis-descriptive because the liquid return line is connected to the reservoir 60 (another recited element in claim 1) through opening 62, not to the turret 72 as appears to be claimed. In all of the independent claims, it is also unclear if applicant is claiming a vapor line separate from a liquid return line or not. Please make the claims clear.

As well, in all of the independent claims, the two evaporation chambers are vaguely defined. It appears, from the disclosure, that there is simply one big open chamber defined inside evaporator 24 that communicates with the well 60, two inside bottom surfaces 68 and central turret 72. Claiming "evaporation chambers", vapor accumulators and reservoirs without specific relationship to the structure that defines these chambers is inherently vague. Claim 14 comes closest to what the examiner

Art Unit: 3744

deems to be acceptable language from the point of view 35 USC 112, second paragraph, in defining these chambers in relation to other structure.

Finally all of the independent claims wander back and forth between claiming "at least one evaporator" (plural) and "the evaporator" (singular). Which is it? Please be consistent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart (USP 4,337,825) in view of Kobayashi (4,036,291) (Figure 5).

Stewart in Figure 2 shows a turret F above a reservoir E with plural evaporators D (see Figure 1) extending from each side of the reservoir. Turret F communicates vapor (through its central portion) with a condenser B and also delivers liquid back to the reservoir (along the sidewalls) No separate vapor supply and liquid return lines are shown in Figure 2 of Stewart.

Figure 5 of Kobayashi teaches using an auxiliary tube 32 to deliver condensed liquid back to the evaporator section and the entire document is incorporated here by

Art Unit: 3744

reference by way of explanation. As described in column 4, lines 31-33 of Kobayashi, this modification solves the problem of the ascending vapor blowing the return liquid back up the vapor tube and thereby interfering with proper heat transfer.

To have modified the ascending vapor tube F in Figure 2 of Stewart to have an upper lip extending slightly into the condenser and a tube (such as shown in Kobayashi Figure 5 at 32) connected to that lip to advantageously permit liquid return without interference by the ascending vapor would have been obvious to one of ordinary skill in the art.

Regarding claim 14, the interface between the ends of the tubes D and the collector E constitutes the stepped edges.

Claims 1-5 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Kobayashi (USP 5,998,863, Figure 1) and at least one of Yamamoto (USP 6,269,866, Figure 8) and Hisano (USP 5,198,889, Figure 25).

Kobayashi, Figure 1, shows a heat pipe structure meeting all of the claimed structural limitations, including a turret (23) except that only one hot device (10) is being cooled. In Figure 8, Yamamoto teaches multiple hot devices 30 of different heights cooled by a heat pipe device. Similarly, Hisano teaches multiple hot devices being cooled by a heat pipe device in Figure 25. To have used Kobayashi's device to cool

Art Unit: 3744

multiple hot devices arranged next to one another on a circuit board would have been obvious to one of ordinary skill in the art, as taught by Yamamoto (Figure 8) and/ or Hisano (Figure 25) to advantageously reduced costs over separately cooling multiple hot devices each with its own separate cooler.


Alternatively, to have modified the cooler shown in Figure 8 of Yamamoto or in Figure 25 of Hisano with the turret 23, tubes 41 and 43 etc from Kobayashi Figure 1 (i.e. use everything above plate 20 from Kobayashi to replace everything above plate 6/wick 11 of Yamamoto or to replace everything above plate 62 of Hisano) would have been obvious to one of ordinary skill in the art to enjoy the advantage disclosed in Kobayashi of improved performance on an inclined orientation.

Regarding claim 14, Yamamoto Figure 8 as modified above with the teachings of Kobayashi shows the various stepped edges claimed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John K. Ford whose telephone number is 571-272-4911. The examiner can normally be reached on Mon.-Fri. 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



John A. Ford
Primary Examiner